## Space Weather Forecast

Issued on Saturday, 20 January 2024 at 13:29 Local

**This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales**

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**Space Weather Forecast Headline: Chance of Moderate activity.**

**Analysis of Space Weather Activity over past 24 hours**
**Solar Activity:** Low activity with only one significant Common-class flare, which appeared to emanate from a region with two sunspots in the southeast quadrant. A large region in the far northeast quadrant is the largest on the disc, but is only evolving slowly. Another region close to the southeast limb is currently simple, but appears to be developing slowly. There are 10 sunspot regions on the disc in total with the remaining regions small or benign. No Earth-directed CMEs have been observed in the last 24 hours.

**Solar Wind / Geomagnetic Activity:** Solar wind speeds have been at slightly elevated levels. Total magnetic field strength was weak with the north-south component also varying weakly.

**Energetic Particles / Solar Radiation:** The count rate of energetic particles (high energy protons) persisted at background with no solar radiation storms occurring.

**Four-Day Space Weather Forecast Summary**
**Solar Activity:** Low activity is forecast, with a slight chance of isolated periods of Moderate activity.

**Solar Wind / Geomagnetic Activity:** There are no Earth directed CMEs currently in the forecast. Solar wind speeds are forecast to perhaps reach elevated levels either later on 20 January or early on 21 January due to the onset of a fast wind. These speeds are then expected to decline through 22 and 23 January as the fast wind declines. Geomagnetic activity is forecast to be mainly Quiet to Unsettled, with a slight chance of Active intervals due to the onset of the high speed stream.

**Energetic Particles / Solar Radiation:** The count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms occurring.

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# Met Office Space Weather Forecast

**Geomagnetic Storms:**

| Geo-Magnetic Storm Probability (Exceedance) | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Minor or Moderate | G1 to G2 | No | 5 | 5 | 1 | 1 |
| Strong | G3 | No | 1 | 1 | 1 | 1 |
| Severe | G4 | No | 1 | 1 | 1 | 1 |
| Extreme | G5 | No | 1 | 1 | 1 | 1 |

**Radio Blackouts - X Ray Flares:**

| X Ray Flares Probability | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | R1-R2 M Class | No | 30 | 30 | 35 | 40 |
| Very Active | R3 to R5 X | No | 1 | 1 | 1 | 1 |

**Solar Radiation Storms - (High Energy Protons):**

| Radiation Storms Probability (Exceedance) | Level ($cm^{-2}$ $sr^{-1}$ $s^{-1}$) | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | ≥ S1 | No | 2 | 2 | 2 | 2 |
| Very Active | ≥ S3 * | No | 1 | 1 | 1 | 1 |

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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